



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------------|
| 10/825,202 | 04/16/2004 | Kazutoshi Haraguchi | 040183 | 7677 |
| 23850 7590 08/02/2007 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005 | | | EXAMINER YOON, TAE H | |
| | | | ART UNIT 1714 | PAPER NUMBER |
| | | | MAIL DATE 08/02/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/825,202 | Applicant(s) HARAGUCHI ET AL. | |
| | Examiner Tae H. Yoon | Art Unit 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 6-8 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1714

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 9, and 13-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 63028639 A.

Rejection is maintained for reason of record with following response.

The disclosure at page 8, lines 3-11 teaches that the water swelling clay mineral that can be exfoliated to form sheet-like layers is used as the water swelling clay mineral (B). Also, the disclosure in lines 7-10 of page 10 teaches that the actual form of the interaction may comprise one or more of ion bonding, hydrogen bonding, hydrophobic bonding, coordinate bonding or covalent bonding, and there are no particular restriction provided an effective three dimensional network structure is formed. Also, use of the organic crosslinker is taught in lines 4-6 of page 10 contrary to applicant's assertion. Note that the instant claims recite "comprising" permitting presence of other components in any amount.

Art Unit: 1714

With respect to new claims 13-16, an invention in a product-by-process is a product, not a process. See *In re Brown*, 459 F2d 531, 173 USPQ 685 (CCPA 1972) and *In re Thorpe*, 777 F2d 695, 697, 227 USPQ 964 (Fed. Cir. 1985).

With respect to new claim 16, JP teaches said organic crosslinker as an optional component, and thus JP still would meet the invention since said organic crosslinker may not be needed.

The instant claims other than claim 4 are silent as to the amount of a polymer and clay, and the instant claims do not require swelling of clay. Thus, the crosslinked composite of JP meets the invention. Again, said clay is inherently water swelling meeting the instant disclosure at page 8, lines 3-11. Examples of JP do not show clay, but, see *In re Mills*, 477 F2d 649, 176 USPQ 196 (CCPA 1972); Reference must be considered for all that it discloses and must not be limited to its preferred embodiments or working examples. Thus, use of clay in said examples would be anticipation since JP teaches water-absorption and since water-absorbing property of said (layered) clay is well known in the art.

Claims 1-5, 9 and 13-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lorah et al (US 2002/0055581 A1 or US 2002/0058739 A1).

Rejection is maintained for reason of record with following response.

Again, the disclosure at page 8, lines 3-11 teaches that the water swelling clay mineral that can be exfoliated to form sheet-like layers is used as the water swelling

Art Unit: 1714

clay mineral (B). Also, the disclosure in lines 7-10 of page 10 teaches that the actual form of the interaction may comprise one or more of ion bonding, hydrogen bonding, hydrophobic bonding, coordinate bonding or covalent bonding, and there are no particular restriction provided an effective three dimensional network structure is formed. Also, use of the organic crosslinker is taught in lines 4-6 contrary to applicant's assertion. **Notes that the instant claims recite "comprising" permitting presence of other components in any amount.** Lorah et al do not show use of a water-soluble (meth)acrylate ester in any examples, but, see *In re Mills*, 477 F2d 649, 176 USPQ 196 (CCPA 1972); Reference must be considered for all that it discloses and must not be limited to its preferred embodiments or working examples. Again, with respect to applicant's argument based on different polymerization, an invention in a product-by-process is a product, not a process. See *In re Brown*, 459 F2d 531, 173 USPQ 685 (CCPA 1972) and *In re Thorpe*, 777 F2d 695, 697, 227 USPQ 964 (Fed. Cir. 1985).

Furthermore, Lorah et al teach employing an **unmodified clay in the aqueous clay dispersion** in [0041] and [0065].

The instant interaction includes hydrophobic bonding (lines 7-10 of page 10), and thus the hydrophobic modified clay would still meet the invention. Also, PP [0009] of Lorah et al teaches that alkylammonium ion surfactants may increase the d-spacing between the clay layers, and such increased d-spacing can be exfoliated to form sheet-like layers meeting the instant water swelling clay.

Claims 6-8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

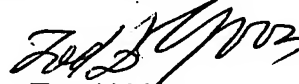
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tae H Yoon
Primary Examiner
Art Unit 1714

THY/July 25, 2007